Back to Benoit?

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The article by Saadet Deger and Ron Smith in this *Bulletin* summarises the general literature on the linkage between military expenditure and economic development. They argue that there are three main sources of empirical evidence, all of which suggest that there is a trade-off between military expenditure and economic development. First, there are general arguments supported by anecdotal evidence and personal experience. Second, there are detailed country case studies of the role of the military in development. Finally, there are econometric studies based on aggregate data and quantifiable variables. This short note concentrates on the last.

Two central issues have been addressed in this literature. First, there is direct competition between the mobilisation of surplus for unproductive military rather than productive investment activity, with possible additional indirect negative effects through biases in technical change which may impede growth. Second, there may be positive benefits via the impact of military effort and expenditure on mobilisation, industrial development, as well as the direct or indirect coercion of both labour and capital in the development process. The debate in the empirical literature hinges on the relative size of the positive and negative effects of military expenditure. Deger and Smith argue that the overall econometric evidence supports the view that the negative effects are more powerful than the positive ones originally identified by Benoit [1973], so that the net effect of military expenditure is negative. Some recent econometric work on the importance of price efficiency in explaining the different growth performance of developing countries in the 1970s carried out by Aghazadeh and Evans [1985] has produced, as a by-product, some results relevant to this debate.

One of the distinctive features of the World Bank 1983 *World Development Report* was an attempt to summarise and synthesise the accumulated wisdom from over ten years of research on the relationship between price distortions, economic efficiency and growth. This empirical work, based on a sample of 31 countries for the 1970s, formed the starting point of our analysis. The World Bank study used single equation estimating procedures. We then extended this analysis to include a number of additional economic, social, political and institutional variables and growth indicators. Our findings suggested that the *World Development Report* results concerning both price distortion variables and non-economic variables were seriously misleading. With an extended data base and using simultaneous equation estimating procedures to check for simultaneous equation bias, we tested 'Non-Structuralist', 'Structuralist', 'Animal Spirits' and 'Export-Led' growth stories for consistency with the data.

The methodology followed can be briefly described as follows. A set of 24 economic and non-economic variables were assembled for the 31 sample countries listed in Table A1. These were made available as regressors in a simple cross-section regression technique, it was found that four variables were most closely related to growth performance shown in the first column of Table A2. These were: SCADP, a variable designed to measure the capacity of governments for strategic planning; RW, the extent to which real wages moved in line with productivity growth; ER, a measure of foreign exchange distortion; and ESSR, a measure of energy self-sufficiency.

Next, a full structural model was constructed, representing four alternative growth stories. The first was called 'Non-Structuralist', based on essentially the same as the growth equation estimated in the step-wise regression analysis with the addition of military expenditure as a share of GDP (ME) and domestic savings as a share of GDP (DS). The other equations fitted were variants of this basic equation — the 'Structuralist' story included the rate of growth of agriculture AGR as one of the independent variables; the Keynesian 'Animal Spirits' story included the rate

Table A1 **Variables and Sample Countries**

1. *Final Variables used out of 24 initial variables*
   G   = growth rate of real GDP (% per annum)
   SCADP   = an overall measure of the capacity of the
             state for strategic development planning
   ME   = military expenditure as a % of GDP
   RW   = distortion level for wages
   ER   = distortion level in exchange rate
   ESSR   = energy self-sufficiency ratio
   AGR   = growth rate of agricultural output (% per annum)
   IG   = growth rate of real investment (% per annum)
   EG   = growth rate of export volume (% per annum)

Source: Aghazadeh and Evans [1985]

2. *Countries*

Argentina	Malawi
Bangladesh	Malaysia
Bolivia	Mexico
Brazil	Nigeria
Cameroon	Pakistan
Chile	Peru
Columbia	Phillipines
Egypt	Senegal
Ethiopia	Sri Lanka
Ghana	Tanzania
India	Thailand
Indonesia	Tunisia
Ivory Coast	Turkey
Jamaica	Uruguay
Kenya	Yugoslavia
Korea, Republic of	

Table A2

OLS Estimates of Alternative Growth Equations

Variable	Equation from step-wise regression analysis	'Non-Structuralist'	'Structuralist'	'Animal Spirits'	'Export-Led'
SCADP	−1.61**	−1.34**	−0.78	−0.56	−0.76
ME	—	0.28*	0.34**	0.08	0.23
RW	−0.94**	−1.04**	−0.75**	−0.67**	−0.78*
ER	−1.81**	−1.74**	−0.98**	−1.06**	−1.73**
ESSR	0.21**	0.19**	0.18**	0.04	0.18**
AGR	—	—	0.67**	—	—
IG	—	—	—	0.23**	—
EG	—	—	—	—	0.09**
SEE	1.96	1.56	1.27	1.21	1.52
R^2	0.62	0.66	0.78	0.80	0.69
$\bar{R}^2$	0.56	0.59	0.72	0.75	0.61

Key: * indicates a t statistic $1.5 < t < 1.7$ or a 5-10% level of significance
   ** indicates a t statistic $1.70 < t$ or a 5% level of significance

Source: Aghazadeh and Evans [1985]
     Table 4.2

of growth of investment IG; the 'Export-Led' growth story included the rate of growth of exports EG.

In the crucial statistical test for the significance of negative indirect effects of military expenditure on savings, it was found that the removal of DS from all of the growth equations had no significant statistical effect on the structural relations. The final results reported were the four equations re-run as single equation estimates as reported in Table A2.

It can be seen from the results reported in Table A2 that the 'Structuralist' and 'Animal Spirits' stories seem to fit the data best. The military expenditure variable ME in the 'Structuralist' equation is positive and is statistically significant at the ten per cent level. ME does not enter the 'Animal Spirits' equation, but separate regressions of investment growth IG show that this variable is closely associated with SCADP and ME is only just below the margin of statistical significance at the ten per cent level. This explains why SCADP and ME are not statistically significant in the 'Animal Spirits' growth equation — all the statistical relationship is explained by the IG variable.

Thus, the indirect negative effects identified by Deger and Smith do not seem to have been operating, at least for the sample countries over the time period investigated. This allows the direct positive effects of military expenditure to exert an overall positive effect.

We have therefore concluded that the 1970s cross-section evidence is consistent with the story about successful growth in which Keynesian 'Animal Spirits' are assisted by strategic development planning and military expenditure undertaken by the state. This story is consistent with Benoit and with the anecdotal remarks of Samuelson [1981] and systematic evidence of Marsh [1979] that authoritarian regimes in developing countries have been more successful than more democratically based political structures.

References

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